International Journal of Research in Medical Sciences
Pokle SS et al. Int J Res Med Sci. 2016 Nov;4(11):4843-4847
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20163777

Original Research Article

Cross-sectional interview-based study on profile of menstrual cycles and menstrual hygiene among undergraduate medical students in a metropolitan city

Sanhita Shyam Pokle, Aniruddha Arjun Malgaonkar*, Sundaram Kartikeyan

Department of Community Medicine, Rajiv Gandhi Medical College, Kalwa, Thane – 400 605, Maharashtra, India

Received: 26 August 2016
Accepted: 27 September 2016

***Correspondence:**
Dr. Aniruddha Arjun Malgaonkar,
E-mail: andydr@rediffmail.com

ABSTRACT

Background: Taboos, socio-cultural restrictions, misconceptions and unhygienic practices associated with menstruation may cause adverse health outcomes. The mode of imparting information about menstruation may influence a girl's beliefs and attitude towards menstruation in later years. Aims and Objectives of the study were to assess the profile of menstrual cycles and menstrual hygiene among undergraduate medical students.
Methods: After obtaining requisite permissions and explaining the purpose of the study, written informed consent was obtained from willing participants. All participants were interviewed by the same female investigator using a pre-tested semi-structured questionnaire and the responses were statistically analyzed.
Results: The age at menarche ranged from 9-16 years (median=13 years). During menarche, the primary sources of information were mothers, teachers and elder sisters for 89.15% respondents. The mean duration of menstrual bleeding was 4.74 days (SD=1.11 days). Peri-menstrual symptoms included fatigue, craving for certain foods, breast tenderness and mental irritability. Those with irregular menses had higher likelihood (OR=2.567) of experiencing heavy menstrual bleeding. 59.09% resorted to self-medication. The frequency of changing sanitary pads and cleaning genital area during menses was inadequate in many respondents.
Conclusions: Despite being medical students, many resorted to self-medication for menstrual problems and had inadequate menstrual hygiene.

Keywords: Menstrual irregularities, Menstrual hygiene, Medical students

INTRODUCTION

Menarche, the onset of menstruation (derived from the Latin word "mensis" meaning month), is one of the milestones in a girl's transition to womanhood and her reproductive health is impacted by her reaction to menarche and the emotional support she receives from her female relatives and peers.[1]

Menstruation and menstrual practices are kept under wraps and accompanied by taboos and socio-cultural restrictions, which sometimes result in adverse health outcomes.[2] Studies reveal that though women's menstrual complaints are widespread, not much attention is paid to understanding them.[3-5] The Global Burden of Disease estimates do not include menstrual dysfunction, like other facets of sexual and reproductive health.[6]

Poor personal hygiene and unsafe sanitary conditions during menstruation increase susceptibility to reproductive tract infections (RTI) and gynecological problems.[7-10] Though many females experience some degree of pain and discomfort during their menses, several physical, psychological and emotional symptoms also occur before and during menstruation.[3] The present study was conducted to assess the profile of menstrual

cycles and menstrual hygiene among female undergraduate medical students in a metropolitan city.

METHODS

This was a complete enumeration, cross-sectional, interview-based study which was conducted in February 2016 on female undergraduate medical students enrolled for the Bachelor of Medicine, Bachelor of Surgery (MBBS) course in a municipal medical college in Kalwa, Thane, located about 30 kilometres from Mumbai city in the state of Maharashtra in Western India.

After obtaining permissions from the Institutional Ethics Committee (IEC) and institutional authorities for conducting the study, the purpose of the study was explained to the prospective respondents and written informed consent was taken from those who were willing to participate in the study. Participants were interviewed, at a place and time convenient to the respondents, by a female investigator (SP), using a pre-tested semi-structured questionnaire.

Data from the completely filled questionnaires were analyzed using EpiInfo Version 7.0 (public domain software package from Centre for Disease Control and Prevention, Atlanta, GA, USA); Karl Pearson's Chi Square test (with Yates' correction where applicable) and Odds Ratio (OR) were calculated. The statistical significance of difference in observations was determined at 95% confidence interval ($p<0.05$). Categorical data were presented as frequencies and continuous data as Mean and Standard deviation (SD).

RESULTS

A total of 129 respondents participated in the study.

Demographic profile

The current age of 91.47% respondents was less than 25 years of age at the time of the study. 96.9% had attained menarche before the age of 15 years. The mean and SD of current age was 20.9 years and 2.69 years while that for age at onset of menarche was 13.02 years and 1.34 years, respectively. The respondents belonged to various religious faiths that included Hinduism (80.62%), Islam (9.30%), Buddhism (5.43%), Jainism (3.10%), and Christianity (1.55%). The first quartile, median, and third quartile of the current age of respondents was 19 years, 20 years and 22 years, respectively. The median age of menarche was 13 years, with respondents attaining menarche as early as 9 years and as late as 16 years (Figure 1).

Information on menstruation during menarche

14 (10.85%) respondents revealed that they were not aware of menstruation at the time of menarche. Of the 115 (89.15%) respondents who were aware, the primary sources of information during their menarche were mothers (60.47%), teachers (17.05%) and elder sisters (6.20%), while 24.03% respondents had obtained information from multiple sources.

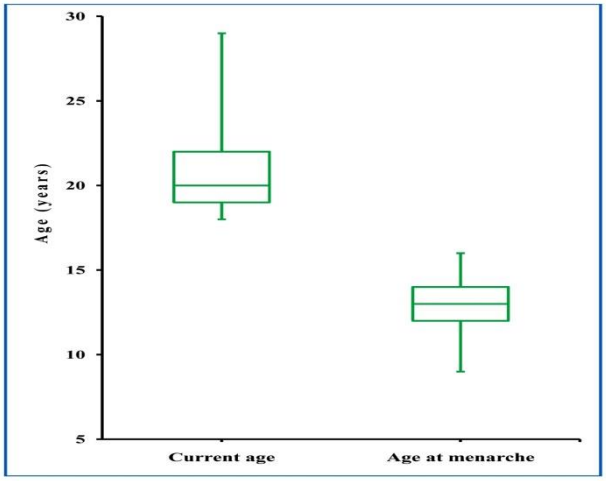

Figure 1: Box plot showing current age and age at menarche.

Menstrual pattern

The mean duration of menstrual bleeding was 4.74 days with SD of 1.11 days. 103 (79.84%) respondents reported that menstruation lasted for 5 days or less, with moderate menstrual bleeding but nearly one-half complained of passing clots. Peri-menstrual symptoms included fatigue, craving for certain types of foods, breast tenderness and mental irritability. (Table 1) Seven (5.43%) had moderate to heavy inter-menstrual bleeding, of these; four respondents mentioned that the inter-menstrual bleeding was accompanied by pain. 72 (55.81%) had vaginal discharge that was whitish in colour (n=61), copious (n=14), thick (n=37), and foul smelling (n=15).

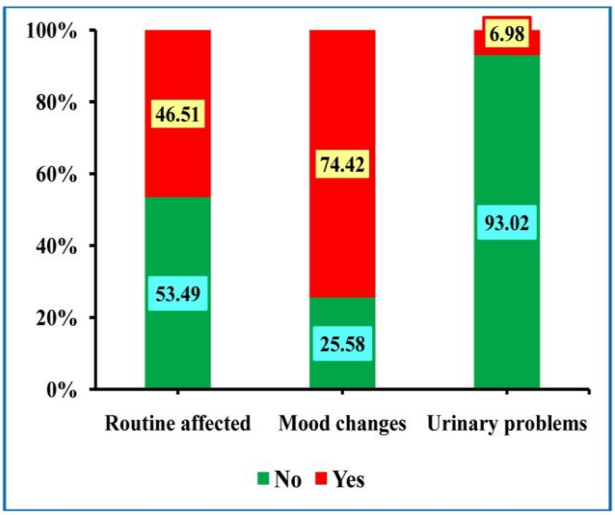

Figure 2: Effect on daily routine, mood changes and urinary problems.

Comparative profile of menstrual bleeding

Respondents reporting heavy menstrual bleeding had significantly (p= 0.0004) higher frequency of passage of clots, as compared to those who did not. But the difference in the amount of bleeding between those who had more than 4 days of bleeding and others was insignificant (p=0.80).

Table 1: Self-reported pattern of menses and peri-menstrual symptoms (n=129).

Parameter	Number	Percentage
Regular cycles	113	87.60
Heavy bleeding	22	17.05
Passing clots	64	49.61
Fatigue	81	62.79
Breast tenderness	31	24.03
Craving for foods	32	24.81
Mental irritability	86	66.67
Other symptoms	21	16.28

The difference between those who reported heavy bleeding and those who did not amongst respondents with irregular menses was statistically insignificant (p=0.208) but those with irregular menses had higher likelihood (Odds Ratio: 2.567) of experiencing heavy menstrual bleeding, as compared to those with regular menses (Table 2).

Menstrual problems

Nearly one-half (46.51%) revealed that their routine was affected during menstruation. (Figure 2) The symptoms experienced by respondents during menstrual and peri-menstrual period included abdominal cramps (88.37%), nausea (21.81%), breast tenderness (27.13%), sleep disturbances (38.76%), low backache (84.5%), mood changes (74.42%) and various urinary problems (6.98%), such as, frequency of micturition, irritation, pain, and retention (Figure 3).

Treatment of symptoms

Only 44 (34.11%) took treatment for symptoms. Of these, 24 (54.55%) took treatment only after the symptoms worsened, 18 (40.91%) took treatment from a qualified doctor while 26 (59.09%) resorted to self-medication.

Table 2: Comparative profile of menstrual bleeding.

Parameters	Menstrual bleeding		Chi^2 Value	p value	Odds Ratio
	Heavy	Not heavy			
Passage of clots	19	45	12.65	0.0004*	0.127
Bleeding >4 days	14	65	0.06	0.8	0.8844
Irregular menses	5	11	1.58	0.208	2.567

* Statistically significant

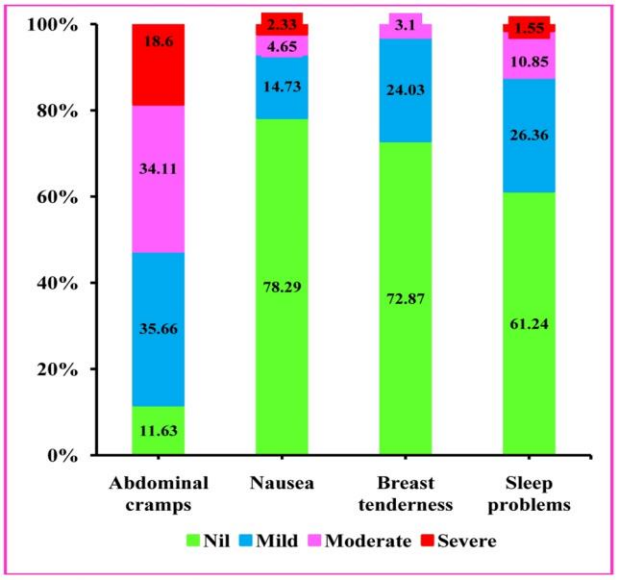

Figure 3: Severity of symptoms during menstruation.

Menstrual hygiene

All respondents used commercially available branded sanitary pads; one respondent used towels in addition to sanitary pads. During their menses, 77 (59.69%) respondents changed sanitary pads two times or less per day and 15 (11.63%) cleaned the genital area less than 3 times a day. 72 (55.81%) disposed off their used sanitary pads along with home garbage while 57 (44.19%) preferred separate disposal. For cleaning the genital region during menses, 52 (40.31%) used soap and water, while 77 (59.69%) used plain water.

DISCUSSION

Demographic profile

In the present study, the mean age of menarche was 13.02 years with a range of 9-16 years. This compares with the findings of an Indore-based study on 126 medical

students, in which, the mean age of menarche was 13 years with a range of 9-17 years.[11]

Information on menstruation during menarche

In a study among nursing students at Egypt, over 85% of the students were aware of menarche, length of the menstrual cycle, and duration of menstrual bleeding.[12] These findings are similar to that of the present study, where 89.15% respondents were aware about menstruation during menarche; mothers were the main source of information, but only 19.38% obtained information from possible authentic sources like a teacher or doctor. Mothers were also the main source of information in a Nigerian study.[13]

Menstrual pattern

In the present study, 16 (12.4%) respondents reported irregular menstrual cycles. This finding compares with that of a Kerala-based study wherein irregular menstrual cycles were reported by 12.4% respondents.[14]

Menstrual problems

In the present study, the self-reported frequencies of moderate to severe abdominal cramps and moderate to severe low backache were 52.71% and 47.82%, respectively. In a Nigerian study[15] among university students, 72% reported dysmenorrhoea. In another study conducted in Thiruvananthapuram, Kerala, 72.4% respondents complained of dysmenorrhoea.[14] In the present study, the daily routine was adversely affected during menses in 46.51% of the respondents. A Pakistan-based study on 197 medical students has reported positive family history of dysmenorrhoea in mothers (33%), sisters (42.6%) and in both mothers and sisters (24.83%).[16] A Tehran-based study reported that 33% of respondents avoided any physical activity or even mild exercise during menses.[17] Though effective medications are available, several studies have reported that dysmenorrhoea adversely affects quality of life, daily activities, socialization, and academic performances at their workplace or at home.[16-23] In the United States, dysmenorrhoea was reported to be the leading cause of short-term school absenteeism.[22-24] Risk factors for dysmenorrhoea include young age,[25, 26] nulliparity, earlier age at menarche, heavy menstrual flow, and positive family history.[16,22-28] In women aged between 14 and 20 years, attempts to lose weight were correlated with increased menstrual pain, independent of body mass index.[29] Depression, anxiety, and disruption of social support networks have been associated with menstrual pain.[30]

Treatment of symptoms

59.09% respondents (medical students) in this study had resorted to self-medication. But in a Nigerian study self-medication with analgesics was comparatively more frequent (75%) among the respondents (school girls).[31]

Menstrual hygiene

In this study, almost all the respondents used disposable sanitary pads and cleansing agents to clean their genital region during menses. In the present study, 59.69% respondents changed their sanitary pads two times or less per day. An Indore-based study on 126 medical students reported that 72% respondents changed their sanitary pads every six-hours during the first two days of their menstrual cycles, but only 42% washed their genital area daily.[11] A key priority for women and girls is to have the necessary knowledge, facilities and cultural environment to manage menstruation hygienically.[32] This interview-based study was limited to medical students of one institution and it was not possible to verify the self-reported data provided by the respondents. A larger multi-institutional study would be advantageous for devising interventional programmes for undergraduate medical students.

CONCLUSION

Despite being medical students, many respondents resorted to self-medication without seeking professional help and did not change their absorbent pads more frequently during menses. Since undergraduate medical students have access to health information, menstrual practices and problems divulged by the respondents could be the proverbial tip of the iceberg.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Fetohy EM. Impact of a health education program for secondary school Saudi girls about menstruation at Riyadh City. J Egypt Public Health Assoc. 2007;82(1,2):105-26.
2. Dasgupta A, Sarkar M. Menstrual Hygiene: How Hygienic is the Adolescent Girl? Indian J Community Med. 2008;33(2):77-80.
3. Abd El-Hameed NA, Mohamed MS, Ahmed NH, Ahmed ER. Assessment of dysmenorrhea and menstrual hygiene practices among adolescent girls in some nursing schools at EL-Minia Governorate, Egypt. J Am Sci. 2011;7(9):216-23.
4. El-Gilanya A, Badawi K, EL-Fedawyb S. Menstrual hygiene among adolescent school girls in Mansoura, Egypt. Reprod Health Matters. 2005;13:147-52.
5. Harlow SD, Campbell OMR. Menstrual dysfunction: are we missing an opportunity for improving reproductive health in developing countries? Reprod Health Matters. 2000;8:142-7.

6. Abou-Zahr C, Vaughn JP. Assessing the burden of sexual and reproductive ill-health: questions regarding the use of disability adjusted life years. Bull WHO. 2000;78:655-66.
7. Shanbhag D, Shilpa R, D'Souza N, Josephine P, Singh J, Goud BR. Perceptions regarding menstruation and practices during menstrual cycles among high school going adolescent girls in resource limited settings around Bangalore city, Karnataka, India. Int J Collab Res Intern Med Public Health. 2012;4(7):1353-62.
8. Bharadwaj S, Patkar A. Menstrual hygiene and management in developing countries: Taking stock. Mumbai: Junction Social. 2004.
9. Bhatia JC, Cleland J. Self-reported symptoms of gynecological morbidity and their treatment in south India. Stud Fam Plann. 1995;26(4):203-16.
10. Wasserheit JN. The significance and scope of reproductive tract infections among Third World women. Suppl Int J Gynecol Obstet. 1989;3:145-68.
11. Sharma N, Sharma P, Sharma N, Wavare RR, Gautam B, Sharma M. A cross sectional study of knowledge, attitude and practices of menstrual hygiene among medical students in north India. Jour Phytopharmacol. 2013;2(5):28-37.
12. El-Shazly MK, Hassanein MH, Ibrahim AG, Nosseir SA. Knowledge about menstruation and practices of nursing students affiliated to University of Alexandria. J Egypt Public Health Assoc. 1990;65(5-6):509-23.
13. Lawan UM, Yusuf NW, Musa AB. Menstruation and menstrual hygiene amongst adolescent school girls in Kano, northwestern Nigeria. Afr J Reprod Health. 2010;14(3):201-8.
14. Nair MKC, Chacko DS, Darwin MR, Padma K, George B, Russell PS. Menstrual Disorders and Menstrual Hygiene Practices in Higher Secondary School Girls. Indian J Pedi. 2012;79(Suppl 1):74-8.
15. Iliyasu Z, Galadanci HS, Abubakar IS, Ismail AO, Aliyu MH. Menstrual Patterns and Gynecologic Morbidity among University Students in Kano, Nigeria. J Pediatr Adolesc Gynecol. 2012;25(6):401-6.
16. Parveen N, Majeed R, Rajar UDM. Familial predisposition of dysmenorrhea among the medical students. Pak J Med Sci. 2009;25(5):857-60.
17. Poureslami M, Osati-Ashtiani F. Assessing Knowledge, Attitudes, and Behavior of adolescent girls in suburban districts of Tehran about dysmenorrhea and menstrual hygiene. J Int Womens Stud. 2002;3(2):51-61.
18. Banikarim C, Chacko MR, Kelder SH. Prevalence and impact of dysmenorrhea on Hispanic female adolescents. Arch Pediatr Adolesc Med 2000;154(12):1226-9.
19. Wu D, Wang X, Chen D, Niu T, Ni J, Liu X, et al. Metabolic gene polymorphisms and risk of dysmenorrhea. Epidemiology. 2000;11(6):648-53.
20. Hillen TIJ, Grbavac SL, Johnston PJ, Straton JAY, Keogh JMF. Primary dysmenorrhea in young western Australian women: prevalence, impact and knowledge of treatment. J Adolesc Health. 1999;25(1):40-5.
21. Johnson J. Level of knowledge among adolescent girls regarding effective treatment for dysmenorrhea. J Adolesc Health Care. 1988;9(5):398-402.
22. Klein JR, Litt IF. Epidemiology of adolescent dysmenorrhea. Pediatrics. 1981;68(5):661-4.
23. Wilson CA, Keye WR Jr. A survey of adolescent dysmenorrhea and premenstrual symptom frequency: A model program for prevention, detection and treatment. J Adolesc Health Care. 1989;10(4):317-22.
24. Alvin PE, Litt IF. Current status of the etiology and the management of dysmenorrhea in adolescence. Pediatrics. 1982;70(4):516-25.
25. Andersch B, Milsom I. An epidemiologic study of young women with dysmenorrhea. Am J Obstet Gynecol. 1982;144:655-60.
26. Teperi J, Rimpela M. Menstrual pain, health and behaviour in girls. Soc Sci Med. 1989;29:163-9.
27. Juang CM, Yen MS, Horng HC, Cheng CY, Yuan CC, Chang CM. Natural progression of menstrual pain in nulliparous women at reproductive age: an observational study. J Chin Med Assoc 2006;69(10):484-8.
28. French L. Dysmenorrhea. Am Fam Physician. 2005;71(2):285-91.
29. Montero P, Bernis C, Fernandez V, Castro S. Influence of body mass index and slimming habits on menstrual pain and cycle irregularity. J Biosoc Sci. 1996;28(3):315-23.
30. Alonso C, Coe CL. Disruptions of social relationships accentuate the association between emotional distress and menstrual pain in young women. Health Psychol. 2001;20:411-6.
31. Adinma ED, Adinma JIB. Perceptions and practices on menstruation amongst Nigerian secondary school girls. Afr J Reprod Health. 2008; 12(1): 74-83.
32. Mahon T, Fernandes M. Menstrual hygiene in South Asia: a neglected issue for WASH (water, sanitation and hygiene) programmes. Gend Dev. 2010;18(1):99-113.

Cite this article as: Pokle SS, Malgaonkar AA, Kartikeyan S. Cross-sectional interview-based study on profile of menstrual cycles and menstrual hygiene among undergraduate medical students in a metropolitan city. Int J Res Med Sci 2016;4:4843-7.